

FINAL REPORT

USAID/Colombia

Special Objective: Earthquake Reconstruction

March 5, 2002

On January 25, 1999, an earthquake measuring 6.0 on the Richter Scale struck Colombia. The epicenter lay in the important coffee-producing department of Quindío. Armenia, the department's capital, was hardest hit with over 1,000 people killed, some 8,000 injured, and approximately 425,000 affected. Some 37,000 families (approximately 185,000 people) were left homeless, 11,000 homes were completely destroyed and 65% of all buildings in the region were damaged or destroyed. Public infrastructure suffered serious damage and the environment was also affected.

On January 26, 1999, the U.S. Ambassador declared the region a disaster area, setting in motion the USG response and an initial \$25,000 emergency assistance allotment. Accordingly, USAID's Office of Foreign Disaster Assistance (OFDA) deployed a 62-person Miami Dade County Search and Rescue Team, along with 56,000 pounds of search and rescue equipment. The team coordinated closely with the Colombian Red Cross and remained in Armenia through January 30.

USAID assistance under Special Objective 2 (SpO2), Earthquake Reconstruction, entails helping Colombia's coffee region recover from the devastation caused by the earthquake and contributing to increased community preparedness for future natural disasters. Previously, USAID/OFDA provided emergency assistance totaling \$375,000 immediately following the earthquake. With \$125,000, they funded the local purchase, rental and transportation of relief supplies and equipment. Between January 26 and February 4, 1999, USAID/OFDA airlifted 600 rolls of plastic sheeting¹, 8,000 polyester blankets, 1,980 ready-to-eat meals, 1,980 gallons of bottled water, and 8,460 prepackaged daily food rations (Humanitarian Daily Rations or HDRs) to earthquake-affected areas. The remaining \$250,000 was given to the Pan-American Health Organization (PAHO) in support of earthquake-related health activities.

Key Special Objective Intermediate Results: The results include: (1) increasing earthquake preparedness and repairing social infrastructure; (2) stabilizing a mountainside near the city of Pereira; and (3) reconstructing housing and related infrastructure.

IR 1: Increased Preparedness for Earthquakes (\$1,189,340)

In addition to providing immediate relief, USAID-sponsored assistance included programs designed to achieve lasting results. Thus, USAID has been involved in activities that will encourage greater disaster preparedness. Following its emergency response, USAID/Colombia received \$10 million from the Central America and Caribbean Emergency Disaster Recovery Fund (CACEDRF) to assist the GOC in its long-term reconstruction effort.

Performance:

¹ The sheeting was used to support a variety of initiatives identified by the USAID/OFDA assessment team in Armenia, including the construction of temporary family shelter units, community kitchens, temporary facilities for destroyed fire stations, and the reconstruction of daycare centers.

- Earthquake Reconstruction Study

In December 1999, the Colombian Association of Seismic Engineers, in conjunction with the *Universidad de los Andes* (Andes University), *Universidad del Quindío* (Quindío University), *Corporación Regional Autónoma del Quindío*, (Autonomous Regional Corporation of Quindío – Regional Environment Authority), and *Ingeominas* (a local institution working in geological and mining activities) prepared and implemented a study titled "*Estudio de la Microzonificación Sísmica para Orientar la Reconstrucción de Armenia, Quindío*" (Study of Seismic Micro-zoning for Orienting the Reconstruction of Armenia, Quindío), containing an analysis of earthquake reconstruction procedures.

- Construction Workshops

Through a grant made to local NGO *Fundación Carvajal* (Carvajal Foundation), USAID funded local construction seminars on earthquake resistant construction techniques using local materials and resources, assuring that appropriate uses of local materials become a part of existing norms in the affected communities. More than 1,000 people attended at the 21 seminars and workshops. Citizens and builders were taught how to effectively utilize local materials and resources in the reconstruction process. In an important outcome of the workshops, the Colombian Association of Seismic Engineer submitted the regulations that standardize construction using *guadua* (bamboo) to the *Comisión Asesora Permanente de la Norma NSR98* (Permanent Technical Commission of Norm NSR98). On January 18, 2002, the Ministry of Development, by Decree 52, approved these regulations.

- "Materials Bank" for the Reconstruction of Social Infrastructure

Throughout the affected area, many schools, community centers, and other important community buildings suffered serious damage. To help meet the demand for construction materials, USAID, in conjunction with *Fundación Carvajal*, supported the creation of a "Materials Bank." The bank included basic construction materials such as zinc sheets, wood and cement. Materials were provided in exchange for transportation and labor provided by project beneficiaries. Designs for structures conformed to earthquake-resistant codes and prototypes developed through the USAID-supported activities of the Colombian Association of Seismic Engineers.

The Materials Bank constitutes a significant success story. With a total investment of only \$819,170, building materials were made available for the reconstruction of 34 social infrastructure projects (against an original target of 24) in 19 municipalities in 3 departments, benefiting an estimated 400,000 people. More than 6,000 square meters of infrastructure were fully constructed and another 6,000 square meters were repaired. The materials bank has also served as a means for keeping the price of local construction materials within the reach of the local population.

Community projects include:

Primary schools	5
Community centers ²	8
Hospitals and health clinics	5
Homes for the elderly	8
Cultural centers	1
Artisan centers	1
Civil Defense Post	1
Sports centers	2
Market places for micro entrepreneurs	2
Center for physically challenged children	1
Total	34

- Construction of “Community Homes”

The Colombian Institute for Family Well-Being (ICBF) finances a variety of programs aimed at supporting the physical, psychological and social development needs of children under the age of seven living in poverty. Many of the buildings that housed these services were destroyed in the earthquake. In order to reestablish these important programs, USAID and *Fundación Carvajal* supported the reconstruction of "community homes" (daycare centers). These facilities provided an appropriate space from which ICBF's programs could resume their operations. A total of 4 community homes, in addition to the 34 social infrastructure projects mentioned above, were fully reconstructed, benefiting 485 children.



Inauguration Hospital San Jose in Marsella



Inauguration Market Place in La Tebaida

² These centers are used for town meetings and social events and minor health events and recreational activities.



Inauguration Hogar del Anciano in La Tebaida



Inauguration Hogar del Anciano in La Victoria



Inauguration of the El Japon Children's Community Home in Dosquebradas, Risaralda.



Inauguration Hogar Celmira Mejia in La Tebaida



Inauguration Hogar del Anciano (Home for the elderly) San Vicente de Paul in Sevilla, Valle



Inauguration Hogar del Anciano (Home for the elderly) El Carmen in Calarca, Quindio



Inauguration of Market Place in Cordoba,



Inauguration of Community Center La Española in Circasia, Quindio

IR 2: Stabilization of Mountainside Near the City of Pereira (\$2,161,350)

As a direct result of the earthquake, landslides occurred throughout the region. The most serious of these took place just outside the city of Pereira, immediately adjacent to its water supply intake system, threatening the lives of some 3,000 residents and the water supply of all 500,000 inhabitants. Through a Participating Agency Service Agreement (PASA), USAID contracted the U.S. Army Corps of Engineers to assess, design and implement a series of measures aimed at achieving slope stability, thereby substantially reducing the risk of damage to the water supply and the lives of residents.

Performance:

In order to stabilize the mountain, a total of 195,000 cubic meters of earth were removed and the engineers constructed 230 linear meters of concrete trunk ditch; 450 linear meters of concrete lateral ditches; 1,200 linear meters of concrete berm ditches; and 2,500 linear meters of bored horizontal drains. In addition to protecting life and preventing the destruction of vital city infrastructure, the project generated an estimated 80 direct and 400 indirect jobs over the project implementation period. Moreover, the documentation on the project has been turned over to local universities for use in their engineering school curriculums. The U.S. Army Corps of Engineers characterized this project, completed in April 2001, as one of its most complex engineering challenges of late.



View of Pereira Landslide project on January 17, 2001.

IR 3: Reconstruction of Local Infrastructure (\$ 9,550,822- CAEDDRF-funded)

Through a contract with the U.S. firm Planning and Development Collaborative, Inc. (PADCO), USAID assistance included: 1) helping local NGOs deliver shelter and basic infrastructure services to low-income earthquake victims; and 2) developing sustainable financial and delivery models that require public and private sector participation, as well as a sustainable investment model.

USAID/Colombia helped provide permanent shelter to approximately 2,600 of the estimated 6,000 of the region's poorest families who were renting at the time of the earthquake. These homes were built using a "sites and services" approach, which required that the families themselves contribute local materials and labor. All projects provided basic infrastructure (potable water and sanitation). The titles to these homes were transferred to the beneficiaries – all poor, first-time homeowners.³ Additionally, USAID financed the reconstruction of one private school serving street children and a home for the elderly.

Performance:

The PADCO project represents the greatest overall achievement of the USAID/Colombia Earthquake Reconstruction Program. It is a model that could and should be replicated in Colombia and elsewhere for disaster relief efforts involving housing reconstruction.

The allocated funds, initially allotted for 1,000 homes on fully serviced lots, constructed 2,880 houses (nearly three times the number of homes originally estimated), with an average lot size of 58 square meters and 31 square meters of finished construction. This accomplishment was made possible by leveraging resources from partner and other organizations. Sixty-five cents were leveraged for every dollar granted by USAID. The houses constructed by local NGOs with USAID financing are considered the best housing solutions constructed in Colombia's coffee belt. The projects include parks, wide roads, green areas, natural surroundings, and areas for recreation, schools, and other community facilities.

Project implementation was almost unprecedented; the contract with PADCO was signed on February 11, 2000, and the construction phase began only four months later. In 19 months (through December 31, 2001), and despite considerable weather-related setbacks, the project achieved the:

- a) identification of eleven (11) local partner NGOs;
- b) analysis of construction and participation proposals (more than 120 proposals were studied);
- c) negotiation of 14 construction projects with 11 NGOs;
- d) establishment of accounting and control systems for the projects;
- e) attainment of tax exemption at points of sale;

³ The transfer of ownership was not initially a part of the PADCO contract. This clearly demonstrates PADCO's thoroughness and initiative in ensuring the success of this important program.

- f) purchase of 14 lots;
- g) implementation of environmental reviews for each project;
- h) attainment of required permits from local authorities;
- i) development of soil studies;
- j) removal of excess soil (in some cases large amounts of soil were removed, over 190,000 soil cubic meters in one project alone);
- k) construction of services facilities and other infrastructure (electricity, water and sewage systems, sidewalks, roads, and, in some cases, telephone lines);
- l) construction of 2,880 single-family homes with a progressive development design at an average cost of \$5,800 (quite low considering the local and international average for this type of construction);
- m) construction of a modern, state-of-the-art home for the elderly (with a total capacity for 65 persons);
- n) construction of a primary school for street children;
- o) attainment, from public and private (NGOs) sources, of significant financial contributions to the projects;
- p) development and implementation of community civic education workshops; and
- q) construction of unanticipated, but necessary, projects, such as a large aqueduct.



*El Recreo, Home Construction Project,
Pereira, Risaralda (162 Homes)*

Additionally, 500 direct and 2,500 indirect jobs were generated over the construction period. A total of 13,500 people who previously resided in temporary shelters, some built by USAID/OFDA, directly benefited from the project.

**Earthquake Reconstruction Expenditures
IDA and ESF Funds
(US\$)**

Project Grantees	LOP Funding Total	Accrued Expenditures up to the 4th Quarter 2001	Accrued Expenditures During 1st Quarter 2002	Total Accrued Expenditures to Date	% of Total Funding expended to Date
<i>Fundación Carvajal</i>	912,409	912,409	-	912,409	100
USACE (2099430)	2,032,913	2,032,913		2,032,913	100
Others	241,628	219,645	-	219,645	90
Total	3,186,950	3,164,967		3,164,967	99

**Earthquake Reconstruction Expenditures
Central America and the Caribbean Disaster Recovery Funds
(US\$)**

Project Grantees	LOP Funding Total	Accrued Expenditures up to the 4th Quarter 2001	Accrued Expenditures During 1st Quarter 2002	Total Accrued Expenditures to Date	% of Total Funding expended to Date
PADCO	9,550,822	7,815,425	1,544,868	9,360,293	98 *
USACE (2099430)	128,437	99,679	-23,710	75,969	59
BDO-Audit	80,000	56,000	24,000	80,000	100
USAID Management	88,515	85,897	-269	85,628	97
<i>Fundación Carvajal</i>	152,226	152,226	-	152,226	100
Total	10,000,000	8,209,227	1,544,889	9,754,116	98 *

* Additional anticipated expenditures should increase this figure to nearly 100 percent.

Regional Urban Development Office

Reconstruction Program Results:

The Regional Urban Development Office for Latin America and the Caribbean (RUDO/LAC) supported USAID/Colombia's post-Armenia earthquake reconstruction assistance with LAC/RSD reconstruction funds. A total of \$100,000 were obligated through a purchase order with local Colombian NGO, *Fundación Carvajal* (Carvajal Foundation). Its experience with self-help construction methods and community organization resulted in 154 housing solutions financed by USAID/Colombia.